

Patent claims

1. A printing ink, at least comprising at least one solvent or a mixture of various solvents, at least one colorant, at least one polymeric binder, and also one or more additives, wherein at least one of the additives is a cyclohexanepolycarboxylic acid derivative.
2. The printing ink according to claim 1, which is a packaging-printing ink.
3. The printing ink according to claim 2, wherein the proportion of the cyclohexanepolycarboxylic acid derivative is from 0.1 to 3% by weight, based on the entirety of all of the constituents of the printing ink.
4. A printing lacquer, at least comprising at least one solvent or a mixture of various solvents, at least one polymeric binder, and also one or more additives, wherein at least one of the additives is a cyclohexanepolycarboxylic acid derivative.
5. The printing ink or printing lacquer according to any of claims 1 to 4, wherein the at least one cyclohexanepolycarboxylic acid derivative is selected from the group consisting of ring-hydrogenated mono- and dialkyl esters of phthalic acid, isophthalic acid and terephthalic acid, ring-hydrogenated mono-, di-, and trialkyl esters of trimellitic acid, of trimesic acid, and of hemimellitic acid, or mono-, di-, tri-, and tetraalkyl esters of pyromellitic acid, where the alkyl groups may be linear or branched and in each case have from 1 to 30 carbon atoms, or from the group consisting of two or more of these.
6. The printing ink or printing lacquer according to any of the preceding claims, wherein the at least one cyclohexanepolycarboxylic acid derivative is selected from the group consisting of:
 - mixed esters of cyclohexane-1,2-dicarboxylic acid with C1-C13 alcohols;
 - di(isopentyl) esters of cyclohexane-1,2-dicarboxylic acid obtainable via hydrogenation of di(isopentyl) phthalate with the Chemical Abstracts Registry Number (hereinafter: CAS No.) 84777-06-0;
 - di(isoheptyl) esters of cyclohexane-1,2-dicarboxylic acid obtainable via hydrogenation of di(isoheptyl) phthalate with the CAS No. 71888-89-6;

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- di(isononyl) esters of cyclohexane-1,2-dicarboxylic acid obtainable via hydrogenation of a di(isononyl) phthalate with the CAS Nr. 68515-48-0;
- 5 di(isononyl) esters of cyclohexane-1,2-dicarboxylic acid obtainable via hydrogenation of a di(isononyl) phthalate with the CAS No. 28553-12-0, based on n-butene;
- 10 di(isononyl) esters of cyclohexane-1,2-dicarboxylic acid obtainable via hydrogenation of a di(isononyl) phthalate with the CAS No. 28553-12-0, based on isobutene;
- a 1,2-di-C₉ ester of cyclohexanedicarboxylic acid obtainable via hydrogenation of a di(nonyl) phthalate with the CAS No. 68515-46-8;
- 15 a di(isodecyl) ester of cyclohexane-1,2-dicarboxylic acid obtainable via hydrogenation of a di(isodecyl) phthalate with the CAS No. 68515-49-1;
- a 1,2-di-C₇₋₁₁ ester of cyclohexanedicarboxylic acid obtainable via hydrogenation of the corresponding ester of phthalic acid with the CAS No. 68515-42-4;
- 20 a 1,2-di-C₇₋₁₁ ester of cyclohexanedicarboxylic acid obtainable via hydrogenation of di-C₇₋₁₁ phthalates with the following CAS Nos.
 111 381-89-6,
 111 381 90-9,
 111 381 91-0,
 68515-44-6,
 68515-45-7, and
 3648-20-7;
- 25 a 1,2-di-C₉₋₁₁ ester of cyclohexanedicarboxylic acid obtainable via hydrogenation of a di-C₉₋₁₁ phthalate with the CAS No. 98515-43-5;
- 30 a 1,2-di(isodecyl) ester of cyclohexanedicarboxylic acid obtainable via hydrogenation of a di(isodecyl) phthalate composed mainly of di(2-propylheptyl) phthalate;
- 35 a 1,2-di-C₇₋₉ ester of cyclohexanedicarboxylic acid obtainable via hydrogenation of the corresponding esters of phthalic acid of the branched-chain or linear C₇₋₉-alkyl ester groups; examples of appropriate phthalates which can be used as starting materials have the following CAS Nos.:
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a di-C_{7,9}-alkyl phthalate with the CAS No. 111 381-89-6;

a di-C₇-alkyl phthalate with the CAS No. 68515-44-6; and

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a di-C₉-alkyl phthalate with the CAS No. 68515-45-7;

hydrogenation products of mixed phthalates with C₁₀ alcohols and with C₁₃ alcohols;

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alkyl esters of cyclohexane-1,2-dicarboxylic acid, e.g. monomethyl ester of cyclohexane-1,2-dicarboxylic acid, dimethyl ester of cyclohexane-1,2-dicarboxylic acid, diethyl ester of cyclohexane-1,2-dicarboxylic acid, di-n-propyl ester of cyclohexane-1,2-dicarboxylic acid, di-n-butyl ester of cyclohexane-1,2-dicarboxylic acid, di-tert-butyl ester of cyclohexane-1,2-dicarboxylic acid, diisobutyl ester of cyclohexane-1,2-dicarboxylic acid, monoglycol ester of cyclohexane-1,2-dicarboxylic acid, diglycol ester of cyclohexane-1,2-dicarboxylic acid, di-n-octyl ester of cyclohexane-1,2-dicarboxylic acid, diisooctyl ester of cyclohexane-1,2-dicarboxylic acid, di-2-ethylhexyl ester of cyclohexane-1,2-dicarboxylic acid, di-n-nonyl ester of cyclohexane-1,2-dicarboxylic acid, diisononyl ester of cyclohexane-1,2-dicarboxylic acid, di-n-decyl ester of cyclohexane-1,2-dicarboxylic acid, diisodecyl ester of cyclohexane-1,2-dicarboxylic acid, di-n-undecyl ester of cyclohexane-1,2-dicarboxylic acid, diisododecyl ester of cyclohexane-1,2-dicarboxylic acid, di-n-octadecyl ester of cyclohexane-1,2-dicarboxylic acid, diisooctadecyl ester of cyclohexane-1,2-dicarboxylic acid, di-n-eicosyl ester of cyclohexane-1,2-dicarboxylic acid, monocyclohexyl ester of cyclohexane-1,2-dicarboxylic acid, dicyclohexyl ester of cyclohexane-1,2-dicarboxylic acid, diisopropyl ester of cyclohexane-1,2-dicarboxylic acid, di-n-hexyl ester of cyclohexane-1,2-dicarboxylic acid, diisohexyl ester of cyclohexane-1,2-dicarboxylic acid, di-n-heptyl ester of cyclohexane-1,2-dicarboxylic acid, diisoheptyl ester of cyclohexane-1,2-dicarboxylic acid, di-2-propylheptyl ester of cyclohexane-1,2-dicarboxylic acid, diisoundecyl ester of cyclohexane-1,2-dicarboxylic acid, di-n-dodecyl ester of cyclohexane-1,2-dicarboxylic acid, di-n-tridecyl ester of cyclohexane-1,2-dicarboxylic acid, diisotridecyl ester of cyclohexane-1,2-dicarboxylic acid, di-n-pentyl ester of cyclohexane-1,2-dicarboxylic acid, diisopentyl ester of cyclohexane-1,2-dicarboxylic acid;

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- hydrogenation products of the commercially available benzenecarboxylic esters with the trade names Jayflex DINP (CAS No. 68515-48-0), Jayflex DIDP (CAS No. 68515-49-1), Palatinol 9-P, Vestinol 9 (CAS No. 28553-12-0), TOTM-I (CAS No. 3319-31-1), Linplast 68-TM, Palatinol N (CAS No. 28553-12-0), Jayflex DHP (CAS No. 68515-50-4), Jayflex DIOP (CAS No. 27554-26-3), Jayflex UDP (CAS No. 68515-47-9), Jayflex DIUP (CAS No. 85507-79-5), Jayflex DTDP (CAS No. 68515-47-9), Jayflex L9P (CAS No. 68515-45-7), Jayflex L911P (CAS No. 68515-43-5), Jayflex L11P (CAS No. 3648-20-2), Witamol 110 (CAS No. 90193-91-2), Witamol 118 (di-n-C₈-C₁₀-alkyl phthalate), Unimoll BB (CAS No. 85-68-7), Linplast 1012 BP (CAS No. 90193-92-3), Linplast 13 XP (CAS No. 27253-26-5), Linplast 610 P (CAS No. 68515-51-5), Linplast 68 FP (CAS No. 68648-93-1) and Linplast 812 HP (CAS No. 70693-30-0), Palatinol AH (CAS No. 117-81-7), Palatinol 711 (CAS No. 68515-42-4), Palatinol 911 (CAS No. 68515-43-5), Palatinol 11 (CAS No. 3648-20-2), Palatinol Z (CAS No. 26761-40-0) and Palatinol DIPP (CAS No. 84777-06-0).
7. The printing ink or printing lacquer according to any of the preceding claims, wherein the at least one cyclohexanepolycarboxylic acid derivative is selected from ring-hydrogenated phthalates which derive from an ester mixture which comprises a mixed ester.
8. The use of the printing ink according to any of claims 1 to 3, or else 5 to 7, for the printing of plastics foils or of metal foils.
9. The use of the printing ink according to any of claims 1 to 3 or else 5 to 7 for the production of multilayer materials for packaging.
10. The use of the printing lacquer according to any of claims 4 to 7 for the priming of plastics foils or of metal foils, or as protective layer, or as finishing layer.
11. The use of the printing lacquer according to any of claims 4 to 7 for the production of multilayer materials for packaging.